

**Commonwealth of Kentucky**  
**Division for Air Quality**  
***PERMIT STATEMENT OF BASIS***

CONDITIONAL MAJOR TITLE V (DRAFT) No. F-01-037

DAVID BRADFORD, INCORPORATED

BOWLING GREEN, KY.

JULY 18, 2002

AARON NEWTON, REVIEWER

PLANT I.D. # 021-227-00135

APPLICATION LOG # 53844

**SOURCE DESCRIPTION:**

David Bradford proposes to construct and operate a secondary aluminum processing facility. The company will bring in scrap aluminum (from used beverage cans) for smelting in a tilted rotary furnace. The dross waste from the smelting process will be temporarily stored on site and then hauled off by a disposal company which will in turn land fill the material. A lime injected baghouse will be attached to control emissions of particulate matter as well as acid gas emissions from reactive fluxing of the furnace. The smelting process will also result in very low emissions of Dioxin and Furan.

**COMMENTS:**

EP#1 (Oxy/Fuel Tilting Rotary Furnace) – Scrap aluminum will be processed at this point at a potential rate of 14,800 pounds per hour with a holding capacity of 44,000 pounds. The Oxy/Fuel furnace is a combination of oxygen and natural gas at a feed rate of 30,000 SCFH and 15,000 SCFH respectively.

Combined the furnace will produce 15 MMBtu per hour. A salt flux consisting of sodium chloride, potassium chloride, and sodium aluminum tetrafluoride will be added at a rate of 3% of the charge. Resulting particulate matter and acid gas emissions will be controlled by a lime-injected baghouse system with control efficiency of 90% for acid gas emissions, with 90% capture and 99.5% control for particulates.

Dioxin/Furan emissions are estimated using emission factors from Locating and Estimating Air Emissions from Sources of Dioxins and Furans. The systems represented in that report were controlled by multiple cyclones. For the back calculations of uncontrolled emissions, a control efficiency of 80% was assumed for the cyclones.

EP#2 (Paved Haul Road) – Average truck weight is assumed to be 50 tons moving the plant processing rate of 14,800 pounds per hour. The road is estimated to be approximately 0.5 miles in length. Emission factors are taken from AP-42 5<sup>th</sup> edition for paved roads using a silt loading rate of 3 g/m<sup>2</sup> (worst case) for low ADT roads.

EP#3 (Scrap Aluminum Storage Area) – The storage facility is approximated to be one acre in area. Emission calculations use emission factors from AP-42 5<sup>th</sup> Edition Aggregate Handling and Storage Piles.

EP#4 (Dross and Salt Cake Storage Area) – The dross storage area is an enclosed facility 30 feet by 30 feet. Approximately 10% of the charge is assumed to become dross and salt cake. Emission calculations for this point are also performed with AP-42 5<sup>th</sup> Edition Aggregate Handling and Storage Piles.

### APPLICABLE REGULATIONS:

401 KAR 59:010, Section 3(2), New process operations applicable to each emission unit which commenced construction after July 2, 1975.

40 CFR part 63, Subpart RRR-National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production

### PERIODIC MONITORING:

David Bradford, Incorporated is required to conduct performance tests to achieve the following:

- (1) Show compliance with the particulate matter allowable.
- (2) Determine an emission factor for HCl emissions.
- (3) Determine the amount of lime needed to control HCl emissions from each baghouse.
- (4) Determine the maximum amount of chloride fluxing material needed to flux each furnace.
- (5) Determine the fabric filter inlet temperature - during each run of the compliance test, record the fabric filter inlet temperature in 15-minute block averages and calculate and record the average temperature for each 3-hour block period.

The Division proposes the following method to determine the requirements listed above:

- a. During the compliance test, record the amount of lime added to the baghouse during each run. Average the amount of lime used over the three (3) runs, and that will be the minimum amount of lime needed to operate the "lime injected baghouse" efficiently during any run time.
- b. During each run of the compliance test, record the amount of chloride fluxing material added to the rotary furnace. Average the amount of chloride fluxing material used over the three runs, and that will be the maximum amount of chloride fluxing material that can be used per run time.
- c. During each run of the compliance test, record the fabric filter inlet temperature in 15-minute block averages and calculate and record the average temperature for each 3-hour block period.
- d. During the compliance test, record the scrap type and amount of constituents in each batch. The scrap type shall be representative of normal process operations.

At the conclusion of the test and upon approval of the test report, the above limits shall be monitored by David Bradford, Incorporated to ensure continuous compliance. Any violations of the limits shall be reported to the Division's Bowling Green Regional Office within seven (7) days of occurrence.

### **CREDIBLE EVIDENCE:**

This permit contains provisions which require that specific test methods, monitoring or record keeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.